

DEPARTMENT OF COMMERCE
 BUREAU OF THE CENSUS
 WASHINGTON

FOURTEENTH CENSUS OF THE UNITED STATES
 MINES AND QUARRIES: 1919

MONTANA, NORTH DAKOTA
 SOUTH DAKOTA, WYOMING

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EXPLANATION OF TERMS.

Scope of census.—Census statistics of mines and quarries, and petroleum and natural-gas wells are compiled primarily for the purpose of showing the absolute and relative magnitude of the different branches of industry covered and their growth or decline. Incidentally, the effort is made to present data throwing light upon character of ownership, size of enterprises, and similar subjects. When use is made of the statistics for these purposes it is imperative that due attention be given to their limitations, particularly in connection with any attempt to derive from them figures purporting to show average wages, cost of production, or profits.

The census does not cover enterprises which were idle, that is, in which neither productive work nor development work was done during the entire year; or the products of which were valued at less than \$500; or in the case of the bituminous coal mining industry, producing less than 1,000 tons; or, if not productive, in which development work amounting to less than \$5,000 was done.

Period covered.—The returns relate to the calendar year 1919, or the business year which corresponded most nearly to that calendar year, and cover a year's operations, except for enterprises which began or discontinued business during the year.

The enterprise.—As used in the text and tables the term enterprise represents one or more mines and quarries, wells or groups of wells, or natural-gas gasoline plants all within the same State operated under a common ownership or unified control, or for which only one set of books of account was kept, and for which a single report was secured. It may cover plants at several localities within the same State. If plants under unified control were not all located within the same State, separate reports were secured in order that statistics for the several enterprises thus defined might be included in statistics for the States in which they were located. The enterprise is further defined as being limited to a single industry. Separate reports were secured with very few exceptions for each industry conducted by an operator, and only where combined reports on two or more industries could not be separated does a single enterprise cover more than one industry. (See "Classification of Industries.") The number of enterprises shown in the tables is equivalent to the number of individual reports tabulated.

Number of mines, quarries, wells, and plants.—Under these designations is given the count of the number of mines, quarries, wells, and gasoline plants shown by the returns received. The unit of enumeration for mines and quarries was difficult to define. As a rule each group of workings at a given locality in which operations were conducted as a unit or were unified by common management or joint handling of some part of the mining process, has been considered as a single mine or quarry. Many individual openings, therefore, are not counted as individual mines. The total number reported comprises those in operation or in the course of development during the year 1919. For petroleum and natural-gas wells the individual wells were counted and the total number productive December 31, 1919, is reported. The number of natural-gas gasoline plants is the total number reported in operation during the year.

Classification by industries.—The enterprises reported have been grouped by industries according to the kind of products. Only a few enterprises made consolidated reports covering more than one kind of product. In such cases classification was determined by the product of chief value.

Selected industries.—The general tables at the end of this bulletin give the principal facts separately for the industries of the State. A selection has been made of the leading industries of the State for more detailed consideration. Industries of greater importance than some of those selected are omitted when they comprise so few enterprises that detailed presentation would reveal the operations of individual concerns.

Influence of increased prices.—In comparing figures for cost of supplies and materials, and value of products, with the corresponding figures for earlier censuses, account should be taken of the general increase in the prices of commodities during recent years. To the extent to which this factor has been influential the figures fail to afford an exact measure of the increase in the volume of business.

Persons engaged in the industry.—The following general classes of persons engaged in the mines and quarries and petroleum and natural-gas industries were distinguished: (1) Proprietors and firm members, (2) salaried officers of corporations, (3) superintendents and managers, (4) technical employees, (5) clerks (including other subordinate salaried employees), and (6) wage earners. In the reports for the census of 1909 the fourth class, technical employees, was not distinguished and was probably included with other salaried employees.

The number of persons engaged in each industry, segregated by occupation, sex, and, in the case of wage earners, also by age (whether under 16 or 16 and over), was reported for a single representative day. The 15th of December was selected as representing for most industries normal conditions of employment, but where this date was not a representative day report for another date was requested.

The number of employees other than wage earners thus reported for the representative date has been treated as equivalent to the average for the year, since the number of employees of this class does not ordinarily vary much from month to month. The average of wage earners has been obtained in the manner explained in the next paragraph.

In addition to the more detailed report by occupation, sex, and age of the number of wage earners on the representative date, a report was obtained of the number employed on the 15th of each month, without distinction of sex or age. From these figures the average number of wage earners for the year has been calculated by dividing the sum of the numbers reported for the several months by 12. The importance of the industry as an employer of labor is believed to be more accurately measured by this average than by the number employed at any one time or on a given day.

The number of wage earners reported for the representative day is given in the table of detailed statistics for the industries, in connection with the classification of wage earners by occupation which was made for the representative day. This number is not used in any other way because, in view of the unavoidable variations of data, such a total is believed to be less significant than the average number. It would involve more or less duplication of persons working in different industries at different times, would not represent the total number employed in all industries at any one time, and would give undue weight to seasonal industries as compared with industries in continuous operation.

Salaries and wages.—Under these heads are given the total payments during the year for salaries and wages, respectively. The Census Bureau has not undertaken to calculate the average annual earnings of either salaried employees or wage earners. Such averages would possess little real value, because they would be based on the earnings of employees of both sexes, of all ages, in different occupations, and of widely varying degrees of skill. Furthermore, so far as wage earners

are concerned, it would be impossible to calculate accurately even so simple an average as this, since the number of wage earners fluctuates rapidly and irregularly in every industry, and in some to a very great extent from day to day. The Census Bureau's figures for wage earners, as already explained, are averages based on the number employed on the 15th of each month and while representing the number according to the pay rolls to whom wages were paid on that date, no doubt represent a larger number than would be required to perform the work in any industry if all were continuously employed during the year.

Prevailing hours of labor.—No attempt was made to ascertain the number of wage earners working a given number of hours per week. The inquiry called merely for the prevailing practice followed in each enterprise. Occasional variations in hours in an establishment from one part of the year to another were disregarded, and no attention was paid to the fact that a few wage earners might have hours differing from those of the majority. All the wage earners of each enterprise are therefore counted in the class within which the enterprise itself falls. In most enterprises, however, practically all the wage earners work the same number of hours, so that the figures give a substantially correct representation of the hours of labor.

Capital.—The instructions on the schedule for securing data relating to capital were as follows: "The answer should show the total amount of capital, owned and borrowed, invested by the operator in the enterprise on the last day of the business year reported. Do not include securities and loans representing investments in other enterprises." These instructions were identical with those employed at the Census of 1909. The reports received in respect to capital, however, at both censuses, have in so many cases been defective that the data compiled are of value only as indicating very general conditions. While there are some enterprises maintaining accounting systems such that an accurate return for capital could be made, this is not true of the great majority, and the figures therefore do not show the actual amount of capital invested.

Expenses.—The expenses reported in the Census of 1919 include salaries and wages; the cost of supplies, materials, and fuels, including the freight on these; cost of power purchased; the cost of contract work; royalties and rents paid; and taxes paid or assessed. The Census of 1909 reported in addition to the items of expenses covered by the present census all other items of expense incident to that year's business except interest on indebtedness, dividends, and allowances for depreciation.

Supplies and materials, fuel, and power.—Statistics as to supplies and materials, fuel, and power, relate to the cost of these used during the year which may be more or less than the amount purchased during the year. The term "supplies and materials" covers mine, mill, quarry, and well supplies, and mineral purchased for treatment, resale, or distribution.

Royalties and rents.—The amounts given under this head represent the payment to fee holders or the value of share of product credited to fee holders for mineral output from leased land and also rents paid for plants, equipment, and privileges or easements.

Taxes.—The taxes include Federal capital stock; corporation income, and excess profits tax; and also State, county, and local taxes. The data compiled in respect to Federal taxes are very defective largely for the reason that many mining corporations are engaged in other business and have sources of income other than from mining and do not pay taxes on mining separately. For many of these corporations no data have been obtained; for others satisfactory segregation of mining could not be made.

Expenditures for development work.—The expenses reported as defined above include costs of both productive operation and development work. In the statistics on producing enterprises that part of the expenses for salaries, wages, contract work, supplies and materials, fuel, and power which was credited by the mine operators to development work is shown as expenditures for development work. In the statistics for nonproducing enterprises the total of all these expenses is given as expenditure for development work.

Quantity of products.—In so far as the statistics on quantities of mineral products in 1919 are available for the States, they will be found in the reports of the United States Geological Survey, which has tabulated the statistics on quantities of products collected by the Bureau of the Census in cooperation with the Geological Survey, and will also be presented in the special reports of the Census on the several mining industries.

Value of products.—The amounts given under this heading represent the selling value at point of production or f. o. b. at point of shipment, or such other value as may represent the net value or amount received for the product made in 1919 under the terms by which it was disposed of, and also includes the value at point of production of products used by the operating company.

Cost of mining and profits.—The census data do not show the entire cost of mining and well operations, and consequently can not be used for the calculation of profits. No account has been taken of depreciation or interest; rent of offices and buildings other than mines, quarries, and wells; insurance, selling, and other sundry expenses.

Land controlled.—The inquiry on land tenure was confined to land pertaining to the mining or well operations covered by the report. In many of these, however, land held in reserve for future development and for speculative or other purposes not pertaining to mining was included in the returns, and also a large number of more or less unsatisfactory estimates were included. Nevertheless, it is believed that the data presented reflect fairly the conditions as to land tenure in the mining industries, and correctly show the order of magnitude of land holdings pertaining to mining enterprises.

Power used.—The item, aggregate horsepower, represents the horsepower of prime movers used by the enterprises for generating power plus horsepower of motors, principally electric, and other equipment operated by power purchased from other concerns. It does not cover the power of electric motors taking their current from primary power generators operated by the same enterprise (such equipment is reported separately), because its inclusion would obviously result in duplication. The figures on power represent the rated capacity of the engines, motors, etc., and not the amount of power in actual daily use.

Fuel.—Statistics of the quantity of fuel used are shown only for anthracite and bituminous coal, coke, wood, oil, and gas. They relate to the quantity used during the year, which may be more or less than the quantity purchased. As only the principal varieties of fuel are shown, no comparison can be made with the total cost of all fuel.

MONTANA.

Montana, which ranks third among the states in size (land area 146,131 square miles) and thirty-ninth in population (548,889 in 1920), ranked sixteenth in value of mineral products for 1919. The state ranked fifteenth in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross amount received for products by operators of all mines, quarries, and wells in Montana in 1919 was \$49,923,721, a decrease of 9.2 per cent as compared with the corresponding amount, \$54,991,611, reported at the census of 1909. However, the value of products for 1919 includes a duplication of \$2,210, the value of gold and silver ores marketed by the producers and again reported after treatment by other operators; and correspondingly, the value of products for 1909 includes a large duplication of \$6,559,820, the value of copper ores which were sold by some producers to others who used them as material. Subtracting these duplications leaves the net value of products \$49,861,511 for 1919 and \$48,432,141 for 1909, an increase in the later year of 3 per cent over the earlier year. These figures for value of products include receipts for mineral by-products, custom milling, power sold, and for work or miscellaneous services for other enterprises which amounted to \$215,159 in 1919.

Because of the wide difference in the proportion of duplicated products to total products for the two census years and since the amounts reported in dollars for 1919 have been affected as much by general price increases as by change in volume of mining business, neither the increase in capital nor the decrease in the aggregate of principal expenditures, as shown in Table 1, serve to measure correctly the growth or decline in mining in Montana during the census period. Also the large decreases in the number of enterprises and the individual mines and quarries operated do not indicate notable decline in mining, but reflect the temporarily adverse industrial conditions in 1919.

The mining industries reported for 1919, classified by principal products and listed in order of value of products, were copper, lead and zinc, bituminous coal, gold and silver (from lode mines), manganese ore, oil (from placer mines), petroleum and natural gas, limestone, iron ore, clay, granite, sandstone, graphite, and silica. The industries for which the statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading mining activities in Montana in 1919 were the mining and milling of gold, silver, copper, lead and zinc ores. These operations represented 59.1 per cent of all mining enterprises in the state, employed 73.6 per cent of the average number of wage earners, and were credited with products valued at \$39,623,472, or 79.4 per cent of the total value of mineral products. This amount is not the value of the metals produced or recoverable but is, for the most part, an estimate of the sales value of the ores, concentrates, bullion, and mine-water precipitates or, in other words, the mine and mill products, most of which were not sold by the producers but were smelted, or smelted and refined, by them. The smelting and refining operations and the value of the metals—the final products—are reported by the census of manufactures. On the basis of combined value of products of gold, silver, copper, lead and zinc mines, Montana ranked second among the states. It ranked third in value of output of mines producing principally copper, fourth in value of output of mines producing chiefly lead and zinc, and seventh in value of output of mines producing principally gold and silver. Production of these metals was chiefly from the Butte district in Silver Bow County, although 17 other western counties were productive.

Coal mining was second in importance in Montana in 1919, with products valued at \$8,591,211, representing 17.2 per cent of the total value of products, and with wage earners representing 23.5 per cent of the total number of wage earners in the mining industries. Carbon, Musselshell, and Cascade Counties were the chief sources of production, but 11 other counties in the northcentral and northeastern parts of the state were also productive.

The production of manganese ores was third in importance in Montana, which ranked first among the states in the output of this commodity. Data for the industry are not shown in order to avoid disclosure of individual operations.

In addition to the operation of the producing mines and quarries, some work was done in Montana on properties which were not productive in 1919. Thirty-six such enterprises were reported in the metal-mining industries. These enterprises with a combined capital of \$5,600,431 employed 263 wage earners and reported \$712,084 spent for development during the year. The number of wage earners em-

ployed and the amount expended for development represent less than 2 per cent of the aggregate number of wage earners and of the aggregate expenditures reported for all mining operations in the state.

The character of organizations conducting mining enterprises in Montana in 1919 is brought out in Table 3. This table shows that while corporations operated only 39.8 per cent of the total number of enterprises, they employed 97.8 per cent of the total number of wage earners, and reported 98.1 per cent of the total value of products. Table 3 also shows that on the basis of average value of products per enterprise, for all industries combined and for each of the selected industries presented separately, corporations conducted by far the most important enterprises.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the total number of mining enterprises in Montana, 23.6 per cent had no wage earners and 68 per cent had fewer than 101 each and employed only 12.8 per cent of the total number of wage earners. On the other hand, only 8.5 per cent of the total number of enterprises had more than 100 wage earners each, and these enterprises em-

ployed 87.2 per cent of the total number of wage earners. The larger enterprises are shown in the metal-mining and coal-mining industries.

Table 5 shows that in approximately half of the enterprises having wage earners and for 29.8 per cent of the wage earners employed the prevailing hours of labor were 44 to 53 per week, and in nearly all the other enterprises and for 69.8 per cent of the wage earners the hours of labor were 54 to 62 per week. For the most part the 8-hour day prevailed—with a 7-day week in the metal-mining industries and a 6-day week in the coal-mining industry.

The statistics for wage earners presented in Table 6, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year. An abnormal minimum is shown for the coal-mining industry in the month of November because of the great strike, which also accounts for the November minimum in the figures for all industries combined.

Table 7 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

MINES AND QUARRIES—MONTANA.

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TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

| | MINING INDUSTRIES. | | Per cent of increase. ¹ | | MINING INDUSTRIES. | | Per cent of increase. ¹ |
|--|--------------------|---------|------------------------------------|---|--------------------|---------------|------------------------------------|
| | 1919 | 1909 | | | 1919 | 1909 | |
| Number of enterprises..... | 259 | 373 | -30.6 | Capital..... | \$209,280,955 | \$145,135,510 | 44.2 |
| Number of mines and quarries..... | 203 | 543 | -50.5 | Principal expenses: | | | |
| Number of petroleum and natural-gas wells..... | 28 | | | Salaries..... | 2,504,801 | 1,413,072 | 77.2 |
| Persons engaged..... | 17,315 | 20,134 | -13.9 | Wages..... | 25,723,908 | 21,361,406 | 20.4 |
| Proprietors and firm members, total..... | 293 | 504 | -41.0 | Contract work..... | 115,521 | 394,499 | -70.7 |
| Number performing manual labor in or about the mines, quarries, and wells..... | 199 | 355 | -43.9 | Supplies and materials ² | 9,514,869 | 16,397,323 | -42.0 |
| Salaried employees..... | 923 | 784 | 17.7 | Fuel and power..... | 2,979,928 | 3,628,050 | -17.9 |
| Wage earners (average number)..... | 16,129 | 18,846 | -14.4 | Royalties and rents..... | 646,125 | 1,822,875 | -64.6 |
| Power used (horsepower)..... | 143,718 | 174,389 | -17.6 | Taxes..... | 1,018,265 | 453,386 | 124.6 |
| | | | | Value of products..... | 49,923,721 | 54,991,961 | -9.2 |

¹ A minus sign (-) denotes decrease.

² Includes cost of ore purchased as material.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

| INDUSTRY. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | | INDUSTRY. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | |
|---|------------------------|-----------------|------------------------|--------------------|------------------------|---|------------------------|-----------------|------------------------|--------------------|------------------------|
| | | Average number. | Per cent distribution. | Amount. | Per cent distribution. | | | Average number. | Per cent distribution. | Amount. | Per cent distribution. |
| All industries..... | 259 | 16,129 | 100.0 | \$49,923,721 | 100.0 | Petroleum and natural gas..... | 5 | 38 | 0.2 | 258,046 | 0.5 |
| Gold, silver, copper, lead, and zinc, lode mines..... | 153 | 11,862 | 73.6 | 39,623,472 | 79.4 | Limestone..... | 7 | 87 | 0.5 | 191,887 | 0.4 |
| Coal, bituminous..... | 07 | 3,797 | 23.5 | 8,591,211 | 17.2 | Granite..... | 3 | 4 | (²) | 12,944 | (²) |
| | | | | | | All other industries ¹ | 24 | 341 | 2.1 | 1,246,161 | 2.5 |

¹ Includes enterprises in industries as follows: Clay, 3; gold, placer mines, 9; graphite, 1; iron ore, 2; manganese ore, 6; sandstone, 2; silica, 1.
² Less than one-tenth of 1 per cent.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Number of wage earners. | VALUE OF PRODUCTS. | | PER CENT DISTRIBUTION. | | |
|--|------------------------|-------------------------|--------------------|-----------------|------------------------|---------------|--------------------|
| | | | Total. | Per enterprise. | Enterprises. | Wage earners. | Value of products. |
| ALL INDUSTRIES | 259 | 16,129 | \$49,923,721 | \$192,756 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 108 | 15,770 | 48,956,538 | 475,306 | 89.8 | 97.8 | 98.1 |
| Individual..... | 73 | 188 | 395,086 | 5,412 | 28.2 | 1.2 | 0.8 |
| Firm ¹ | 83 | 171 | 572,097 | 6,893 | 32.0 | 1.1 | 1.1 |
| GOLD, SILVER, COPPER, LEAD, AND ZINC, LODGE MINES | 153 | 11,862 | 39,623,472 | 258,977 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 53 | 11,730 | 39,194,355 | 739,516 | 34.5 | 98.9 | 98.9 |
| Individual..... | 45 | 77 | 171,121 | 3,803 | 29.4 | 0.6 | 0.4 |
| Firm ² | 55 | 55 | 257,996 | 4,661 | 35.9 | 0.5 | 0.7 |
| COAL, BITUMINOUS | 07 | 3,797 | 8,591,211 | 128,227 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 20 | 3,641 | 8,217,750 | 283,371 | 43.3 | 95.9 | 95.6 |
| Individual..... | 21 | 84 | 174,776 | 8,328 | 31.3 | 2.2 | 2.0 |
| Firm ² | 17 | 72 | 198,670 | 11,087 | 25.4 | 1.9 | 2.3 |
| PETROLEUM AND NATURAL GAS | 5 | 38 | 258,046 | 51,000 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 5 | 38 | 258,046 | 51,000 | 100.0 | 100.0 | 100.0 |
| LIMESTONE AND GRANITE | 10 | 91 | 204,831 | 20,483 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 4 | 63 | 152,500 | 38,125 | 40.0 | 69.2 | 74.5 |
| Individual ³ | 6 | 28 | 52,331 | 8,722 | 60.0 | 30.8 | 25.5 |

¹ Includes 2 other forms of organization.

² Includes 1 other form of organization.

³ Includes 2 firms.

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TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | | INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | |
|---|--------------|------------------------|---------------|------------------------|---|--------------|------------------------|---------------|------------------------|
| | Number. | Per cent distribution. | Number. | Per cent distribution. | | Number. | Per cent distribution. | Number. | Per cent distribution. |
| ALL INDUSTRIES..... | 250 | 100.0 | 16,129 | 100.0 | COAL, BITUMINOUS..... | 67 | 100.0 | 3,707 | 100.0 |
| No wage earners..... | 61 | 23.6 | | | No wage earners..... | 1 | 1.5 | | |
| 1 to 5..... | 103 | 39.8 | 208 | 1.3 | 1 to 5..... | 27 | 40.3 | 54 | 1.4 |
| 6 to 20..... | 45 | 17.4 | 502 | 3.1 | 6 to 20..... | 18 | 26.0 | 173 | 4.6 |
| 21 to 50..... | 16 | 6.2 | 488 | 3.0 | 21 to 50..... | 6 | 9.0 | 100 | 5.0 |
| 51 to 100..... | 12 | 4.6 | 870 | 5.4 | 51 to 100..... | 5 | 7.5 | 348 | 9.2 |
| 101 to 500..... | 16 | 6.2 | 3,238 | 20.1 | 101 to 500..... | 8 | 11.0 | 1,715 | 45.2 |
| 501 to 1,000..... | 4 | 1.5 | 2,613 | 16.2 | 501 to 1,000..... | 2 | 3.0 | 1,317 | 34.7 |
| Over 1,000..... | 2 | 0.8 | 8,210 | 50.9 | | | | | |
| GOLD, SILVER, COPPER, LEAD, AND ZINC, LOBE MINES..... | 153 | 100.0 | 11,862 | 100.0 | | | | | |
| No wage earners..... | 54 | 35.3 | | | | | | | |
| 1 to 5..... | 55 | 35.9 | 108 | 0.9 | | | | | |
| 6 to 20..... | 19 | 12.4 | 230 | 1.9 | | | | | |
| 21 to 50..... | 8 | 5.2 | 243 | 2.0 | | | | | |
| 51 to 100..... | 6 | 3.9 | 470 | 4.0 | | | | | |
| 101 to 500..... | 7 | 4.6 | 1,305 | 11.0 | | | | | |
| 501 to 1,000..... | 2 | 1.3 | 1,296 | 10.9 | | | | | |
| Over 1,000..... | 2 | 1.3 | 8,210 | 69.2 | | | | | |

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | |
|---|---------------|---------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Enter-prises. | Wage earners. | 35 and under. | | 36 to 43. | | 44 to 53. | | 54 to 62. | |
| | | | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. |
| All industries..... | 1,198 | 16,129 | 1 | 24 | 5 | 38 | 100 | 4,808 | 62 | 11,269 |
| Gold, silver, copper, lead, and zinc, lode mines..... | 99 | 11,862 | | | | | 31 | 1,030 | 68 | 10,832 |
| Coal, bituminous..... | 66 | 3,797 | 1 | 24 | 5 | 38 | 55 | 3,718 | 5 | 417 |
| All other industries..... | 38 | 470 | | | | | 14 | 60 | 19 | 410 |

¹ Exclusive of 61 enterprises employing no wage earners in industries, as follows: Clay, 3; coal, bituminous, 1; gold, silver, copper, lead and zinc, lode mines, 54; gold, placer mines, 2; sandstone, 1.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.]

| INDUSTRY. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|---|--------------------------------------|---|-----------|--------|--------|--------|------------|--------|---------|---------------|----------|---------------|-----------|---------------------------------|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| All industries..... | 16,392 | 21,100 | 16,861 | 16,215 | 15,554 | 15,352 | 15,011 | 16,271 | 16,480 | 15,810 | 16,080 | <i>14,905</i> | 16,247 | 67.3 |
| Producing enterprises..... | 16,129 | 20,911 | 16,661 | 16,017 | 15,329 | 15,104 | 15,324 | 15,910 | 16,197 | 15,830 | 16,685 | <i>15,022</i> | 15,968 | 66.6 |
| Gold, silver, copper, lead, and zinc, lode mines..... | 11,832 | 15,950 | 12,117 | 11,398 | 11,098 | 10,680 | 11,313 | 11,652 | 11,701 | <i>10,883</i> | 11,800 | 12,324 | 11,056 | 68.2 |
| Coal, bituminous..... | 3,797 | 4,464 | 4,101 | 4,107 | 3,732 | 3,001 | 3,613 | 3,807 | 4,020 | 4,178 | 4,379 | <i>1,124</i> | 4,429 | 25.2 |
| Limestone..... | 87 | 81 | 70 | 83 | 89 | 95 | 115 | 100 | 94 | 83 | 82 | <i>83</i> | 69 | 60.0 |
| Petroleum and natural gas..... | 38 | 35 | 35 | 35 | 36 | 40 | 40 | 40 | 41 | 40 | 40 | 36 | 38 | 85.4 |
| Granite..... | 4 | | | | 4 | 6 | 7 | 7 | 8 | 6 | 6 | <i>2</i> | 2 | 25.0 |
| All other industries..... | 341 | 375 | 338 | 394 | 370 | 376 | <i>236</i> | 304 | 324 | 340 | 318 | 353 | 304 | 59.9 |
| Nonproducing enterprises: Gold, silver, copper, lead or zinc, lode mines..... | 263 | <i>189</i> | 200 | 198 | 225 | 248 | 287 | 361 | 283 | 280 | 304 | 283 | 289 | 52.4 |

MINES AND QUARRIES—MONTANA.

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TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

| | Aggregate. | PRODUCING ENTERPRISES. | | | | | | | NON-PRODUCING ENTERPRISES. |
|---|---------------|------------------------|--|-------------------|----------------------------|------------|----------|-------------------------|----------------------------|
| | | Total. | Gold, silver, copper, lead, and zinc, lode mines. ¹ | Coal, bituminous. | Petroleum and natural gas. | Limestone. | Granite. | All other. ² |  | Metalliferous lode mines. |
| Number of enterprises..... | 295 | 259 | 153 | 67 | 5 | 7 | 3 | 24 | 36 |
| Number of mines and quarries..... | 305 | 269 | 159 | 76 | | 7 | 3 | 24 | 36 |
| Number of petroleum and natural-gas wells..... | 28 | 28 | | | 28 | | | | |
| Capital..... | \$214,887,380 | \$209,289,955 | \$197,434,904 | \$7,742,364 | \$327,067 | \$445,031 | \$33,025 | \$2,803,574 | \$5,600,431 |
| Principal expenses: | | | | | | | | | |
| Salaries and wages-- | | | | | | | | | |
| Officers..... | \$367,029 | \$357,766 | \$273,732 | \$73,575 | \$2,318 | \$1,541 | | \$6,300 | \$9,263 |
| Superintendents and managers..... | \$813,485 | \$774,858 | \$576,050 | \$158,005 | \$6,888 | \$5,893 | | \$28,522 | \$38,627 |
| Technical employees..... | \$397,048 | \$393,175 | \$369,854 | \$10,241 | \$1,800 | | | \$2,280 | \$3,873 |
| Clerks, etc..... | \$982,004 | \$978,502 | \$854,056 | \$105,633 | \$3,354 | \$3,624 | | \$11,835 | \$3,502 |
| Wage earners..... | \$26,164,710 | \$25,723,908 | \$10,240,230 | \$5,703,810 | \$53,057 | \$110,806 | \$5,008 | \$596,949 | \$439,802 |
| Supplies and materials..... | \$9,652,946 | \$9,452,659 | \$7,827,402 | \$1,183,810 | \$43,492 | \$55,678 | \$2,548 | \$339,669 | \$200,287 |
| Cost of ore purchased..... | \$62,210 | \$62,210 | \$62,210 | | | | | | |
| Fuel..... | \$1,310,531 | \$1,267,627 | \$947,725 | \$280,309 | \$14,989 | \$7,114 | \$635 | \$10,855 | \$42,004 |
| Power..... | \$1,725,208 | \$1,712,301 | \$1,590,185 | \$59,979 | | \$6,820 | | \$55,317 | \$12,907 |
| Royalties and rents..... | \$646,125 | \$646,125 | \$478,934 | \$130,369 | \$15,568 | | \$690 | \$11,664 | |
| Taxes..... | \$1,024,491 | \$1,018,265 | \$817,621 | \$158,097 | \$10,802 | | \$2,437 | \$29,176 | \$6,226 |
| Contract work..... | \$132,828 | \$115,521 | \$91,797 | \$6,665 | \$2,272 | | | \$14,787 | \$17,307 |
| Expenditures for development (included in the above items)..... | \$3,857,204 | \$3,145,120 | \$2,702,651 | \$311,434 | \$60,261 | \$11,250 | \$1,000 | \$58,524 | \$712,084 |
| Value of products..... | \$40,923,721 | \$40,923,721 | \$39,023,472 | \$8,591,211 | \$253,046 | \$191,887 | \$12,944 | \$1,240,161 | |
| Persons engaged in industry..... | 17,065 | 17,345 | 12,740 | 4,056 | 48 | 99 | 7 | 395 | 320 |
| Proprietors and firm members (total)..... | 297 | 293 | 184 | 70 | | 6 | 3 | 30 | 4 |
| Number performing manual labor..... | 199 | 199 | 144 | 37 | | 2 | 2 | 14 | |
| Salaried officers..... | 78 | 68 | 28 | 35 | 2 | | | 3 | 10 |
| Superintendents and managers..... | 248 | 218 | 147 | 56 | 3 | 4 | | 8 | 30 |
| Technical employees..... | 169 | 165 | 13 | 13 | 1 | | | 1 | 4 |
| Clerks, etc..... | 481 | 472 | 369 | 85 | 4 | 2 | | 12 | 9 |
| Wage earners (average number)..... | 10,392 | 10,120 | 11,862 | 3,797 | 38 | 87 | 4 | 341 | 263 |
| Wage earners by occupation (Dec. 15): | | | | | | | | | |
| Above ground (total)..... | 4,338 | 4,226 | 3,053 | 828 | 38 | 86 | 9 | 212 | 112 |
| Below ground (total)..... | 13,351 | 13,030 | 9,007 | 3,735 | | | | 297 | 812 |
| Foreman, shift bosses, etc.-- | | | | | | | | | |
| Above ground..... | 209 | 197 | 141 | 34 | | 7 | 1 | 14 | 12 |
| Below ground..... | 533 | 513 | 430 | 67 | | | | 16 | 20 |
| Enginemen, hoistmen, electricians, mechanics, etc.-- | | | | | | | | | |
| Above ground..... | 1,240 | 1,188 | 768 | 335 | 29 | 7 | | 49 | 61 |
| Below ground..... | 466 | 403 | 325 | 138 | | | | | 3 |
| Minors, quarrymen, and drillmen, including their helpers-- | | | | | | | | | |
| Above ground..... | 117 | 109 | 18 | 26 | | 32 | 4 | 29 | 8 |
| Below ground..... | 7,617 | 7,432 | 4,062 | 2,632 | | | | 138 | 185 |
| Timbermen, trackmen, and men engaged in hauling, tramming, etc.-- | | | | | | | | | |
| Above ground..... | 123 | 112 | 37 | 50 | | 1 | 2 | 16 | 11 |
| Below ground..... | 3,851 | 3,815 | 3,154 | 615 | | | | 46 | 36 |
| Muckers, loaders, laborers, and others not classified-- | | | | | | | | | |
| Above ground..... | 1,193 | 1,173 | 723 | 356 | 9 | 24 | | 61 | 20 |
| Below ground..... | 884 | 810 | 456 | 283 | | | | 97 | 68 |
| Wage earners employed in mills and beneficiating plants-- | | | | | | | | | |
| Above ground..... | 1,447 | 1,447 | 1,366 | 21 | | 15 | 2 | 43 | |
| Number of females included in wage earners reported above-- | | | | | | | | | |
| Above ground..... | 9 | 4 | 3 | | | | | 1 | 5 |
| Mineral and oil land operated..... acres.. | 113,080 | 107,541 | 19,070 | 73,967 | 4,760 | 1,823 | 425 | 7,490 | 6,139 |
| Land controlled, total..... acres.. | 127,724 | 121,085 | 22,614 | 82,269 | 4,760 | 1,823 | 425 | 9,187 | 6,639 |
| Mineral and oil land owned..... | 83,452 | 79,300 | 13,004 | 55,124 | 1,960 | 1,080 | 405 | 7,127 | 4,152 |
| Mineral and oil land leased..... | 31,040 | 29,653 | 6,164 | 20,163 | 2,800 | 143 | 20 | 363 | 1,987 |
| Timber and other lands owned and leased..... | 12,632 | 12,132 | 3,446 | 6,979 | | | | 1,707 | 600 |
| Power used: Aggregate horsepower..... | 146,514 | 143,718 | 111,481 | 27,077 | 245 | 1,290 | 75 | 3,550 | 2,796 |
| Prime movers (horsepower, total)..... | 52,320 | 50,593 | 30,188 | 19,132 | 245 | 235 | 75 | 718 | 1,736 |
| Steam engines-- | | | | | | | | | |
| Number..... | 135 | 117 | 49 | 60 | 4 | 2 | | 2 | 18 |
| Horsepower..... | 43,304 | 41,987 | 26,745 | 14,079 | 138 | 125 | | 300 | 1,317 |
| Steam turbines-- | | | | | | | | | |
| Number..... | 13 | 13 | | 13 | | | | | |
| Horsepower..... | 4,350 | 4,350 | | 4,350 | | | | | |
| Internal-combustion engines-- | | | | | | | | | |
| Number..... | 72 | 53 | 22 | 11 | 5 | 1 | 3 | 11 | 19 |
| Horsepower..... | 1,327 | 1,033 | 315 | 103 | 107 | 40 | 75 | 393 | 294 |
| Water wheels, turbines, and motors-- | | | | | | | | | |
| Number..... | 22 | 20 | 16 | | | 2 | | 2 | 2 |
| Horsepower..... | 3,348 | 3,223 | 3,123 | | | 70 | | 25 | 125 |
| Purchased power (horsepower, total)..... | 94,185 | 93,125 | 81,293 | 7,945 | | 1,055 | | 2,832 | 1,060 |
| Electric motors operated by purchased current-- | | | | | | | | | |
| Number..... | 1,562 | 1,543 | 1,202 | 185 | | 15 | | 51 | 19 |
| Horsepower..... | 94,185 | 93,125 | 81,293 | 7,945 | | 1,055 | | 2,832 | 1,060 |
| Electric motors run by current generated by enterprise using: | | | | | | | | | |
| Number..... | 180 | 179 | 34 | 145 | | | | | 1 |
| Horsepower..... | 6,711 | 6,696 | 1,457 | 5,239 | | | | | 16 |
| Fuel used: | | | | | | | | | |
| Coal, bituminous..... tons, 2,000 pounds.. | 329,939 | 325,737 | 169,504 | 163,456 | 197 | 1,065 | 5 | 1,450 | 4,202 |
| Coke..... tons, 2,000 pounds.. | 4,874 | 4,874 | 4,874 | | | | | | |
| Wood..... cords..... | 0,765 | 5,083 | 5,699 | | | 42 | | 42 | 1,082 |
| Fuel oils..... barrels..... | 1,511 | 951 | 806 | | | | 85 | | 560 |
| Gasoline and other volatile oils..... barrels..... | 1,808 | 1,459 | 470 | 113 | | 36 | 2 | 829 | 349 |
| Natural gas..... 1,000 cubic feet..... | 671,621 | 671,621 | | | 671,621 | | | | |

¹ Includes 3 reduction mills operated independently of mines and 5 operations on dumps and old tailings.
² Includes enterprises as follows: Clay, 3; gold, placer mines, 9; graphite, 1; iron ore, 2; manganese ore, 6; sandstone, 2; silica, 1.

NORTH DAKOTA.

North Dakota, which ranks sixteenth among the states in size (land area, 70,183 square miles) and thirty-sixth in population (646,872 in 1920), ranked thirty-ninth in value of products in 1919. The state ranked forty-first in total number of persons engaged in the mining industry and in the average number of wage earners employed.

The only mining industry in North Dakota for which statistics can be presented for 1919 was the mining of coal. Production of petroleum and natural gas was reported, but the operations were too small to come within the scope of the census. The total value of coal produced was \$1,927,304, an increase of 241.2 per cent over the value of all products reported at the census of 1909. This increase and the increases in capital, salaries and wages, cost of supplies and materials and fuel and power, as shown in Table 1, are in large part due to general price increases during the census interval. The real growth of mining in the state, however, is indicated by the increases in number of enterprises and individual mines and quarries operated and average number of wage earners employed.

The coal mined in North Dakota is lignite. Production was reported from the western half of the

state, chiefly from Burleigh County, but also from 15 other western counties.

The character of organization of the mining enterprises is shown in Table 2, which brings out the fact that although corporations conducted only about a fourth of the total number of mining enterprises, these were the larger enterprises and they collectively employed 73.8 per cent of the total number of wage earners and reported 66.3 per cent of the total value of products.

Table 3 shows that the coal mines of North Dakota were all small; only 2 enterprises reported more than 50 wage earners, and together these employed 46 per cent of the total number of wage earners.

The prevailing hours of labor in North Dakota mines in 1919 are shown in Table 4 to have been 44 to 53 per week. The 8-hour day and 6-day week prevailed.

The statistics for wage earners given in Table 5, showing changes in the number employed month by month, reflect control of the industry by seasonal demand.

Table 6 presents statistics in detail for the mining industry of the state.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

| | MINING INDUSTRIES. | | Per cent of increase. ¹ | | MINING INDUSTRIES. | | Per cent of increase. ¹ |
|--|--------------------|-------|------------------------------------|-----------------------------|--------------------|-------------|------------------------------------|
| | 1919 | 1909 | | | 1919 | 1909 | |
| Number of enterprises..... | 79 | 53 | ..... | Capital..... | \$1,865,347 | \$1,058,040 | 76.2 |
| Number of mines and quarries..... | 79 | 53 | ..... | Principal expenses: | | | |
| Number of natural-gas wells..... | ..... | 0 | ..... | Salaries..... | 150,040 | 82,580 | 155.1 |
| Persons engaged..... | 939 | 602 | 41.8 | Wages..... | 1,020,120 | 364,321 | 182.5 |
| Proprietors and firm members, total..... | 75 | 51 | ..... | Contract work..... | 30,750 | 1,325 | ..... |
| Number performing manual labor in or about the mines and quarries..... | 23 | 10 | ..... | Supplies and materials..... | 283,633 | 95,352 | 107.5 |
| Salaried employees..... | 90 | 40 | ..... | Fuel and power..... | 37,094 | 12,835 | 193.7 |
| Wage earners (average number)..... | 774 | 502 | 37.7 | Royalties and rents..... | 36,808 | 10,047 | 189.9 |
| Power used (horsepower)..... | 2,037 | 2,025 | 0.6 | Taxes..... | 10,022 | 4,300 | 303.8 |
| | | | | Value of products..... | 1,927,304 | 504,812 | 241.2 |

¹ Percentages are omitted where base is less than 100.

TABLE 2.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Number of wage earners. | VALUE OF PRODUCTS. | | PER CENT DISTRIBUTION. | | |
|---|------------------------|-------------------------|--------------------|-----------------|------------------------|---------------|--------------------|
| | | | Total. | Per enterprise. | Enterprises. | Wage earners. | Value of products. |
| COAL, BITUMINOUS..... | 79 | 774 | \$1,927,304 | \$24,306 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 10 | 571 | 1,278,196 | 67,273 | 24.1 | 73.8 | 66.3 |
| Individual..... | 48 | 100 | 497,140 | 10,357 | 50.8 | 20.7 | 25.8 |
| Firm..... | 12 | 43 | 151,968 | 12,604 | 15.2 | 5.0 | 7.0 |

MINES AND QUARRIES—NORTH DAKOTA.

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TABLE 3.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS: 1919.

| INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | | INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | |
|---|--------------|------------------------|---------------|------------------------|---|--------------|------------------------|---------------|------------------------|
| | Number. | Per cent distribution. | Number. | Per cent distribution. | | Number. | Per cent distribution. | Number. | Per cent distribution. |
| COAL, BITUMINOUS..... | 70 | 100.0 | 774 | 100.0 | COAL, BITUMINOUS—Con. | | | | |
| No wage earners..... | 3 | 3.8 | | | 21 to 50..... | 4 | 5.1 | 97 | 12.5 |
| 1 to 5..... | 51 | 64.6 | 123 | 15.9 | 51 to 100..... | 1 | 1.3 | 85 | 11.0 |
| 6 to 20..... | 10 | 24.0 | 198 | 25.0 | 101 to 500..... | 1 | 1.3 | 271 | 35.0 |

TABLE 4.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK: 1919.

| INDUSTRY. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | |
|-----------------------|--------------|---------------|---|---------------|--------------|---------------|--------------|---------------|--------------|---------------|
| | Enterprises. | Wage earners. | 35 and under. | | 36 to 43. | | 44 to 53. | | 54 to 62. | |
| | | | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. |
| Coal, bituminous..... | 176 | 774 | 1 | 14 | 2 | 7 | 67 | 730 | 6 | 23 |

1 Excludes 3 enterprises employing no wage earners.

TABLE 5.—WAGE EARNERS, BY MONTHS: 1919.

[The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.]

| INDUSTRY. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|-----------------------|--------------------------------------|---|-----------|--------|--------|------|------------|-------|---------|------------|----------|-----------|-----------|---------------------------------|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| Coal, bituminous..... | 774 | 1,011 | 878 | 807 | 636 | 497 | 472 | 518 | 550 | 776 | 931 | 1,054 | 1,158 | 40.8 |

TABLE 6.—DETAILED STATISTICS FOR THE MINING INDUSTRY: 1919.

| | PRODUCING ENTERPRISES. | | PRODUCING ENTERPRISES. |
|---|------------------------|--|---|
| | Coal, bituminous. |  |  | Coal, bituminous. |
| Number of enterprises..... | 70 | | Persons engaged in industry—Continued. Wage earners by occupation (Dec. 15)—Continued. Miners, quarrymen, and drillmen, including their helpers— Above ground..... 35 Below ground..... 550 Timbermen, trackmen, and men engaged in hauling, tramming, etc.— Above ground..... 35 Below ground..... 153 Muckers, loaders, laborers, and others not classified— Above ground..... 191 Below ground..... 96 Mineral land operated..... acres..... 17,734 Land controlled, total..... acres..... 18,558 Mineral land owned..... 9,305 Mineral land leased..... 8,429 Timber and other lands owned and leased..... 324 Power used: Aggregate horsepower..... 2,037 Prime movers (horsepower, total)..... 1,783 Steam engines— Number..... 28 Horsepower..... 1,630 Internal-combustion engines— Number..... 38 Horsepower..... 253 Purchased power (horsepower, total)..... 254 Electric motors operated by purchased current— Number..... 24 Horsepower..... 254 Electric motors run by current generated by enterprise using: Number..... 9 Horsepower..... 100 Fuel used: Coal, bituminous..... tons, 2,000 pounds..... 16,437 Gasoline and other volatile oils..... barrels..... 451 |
| Number of mines and quarries..... | 79 | | |
| Capital..... | \$1,865,347 | | |
| Principal expenses: | | | |
| Salaries and wages— | | | |
| Officers..... | \$97,279 | | |
| Superintendents and managers..... | \$53,760 | | |
| Technical employees..... | \$29,749 | | |
| Clerks, etc..... | \$36,858 | | |
| Wage earners..... | \$1,029,126 | | |
| Supplies and materials..... | \$283,633 | | |
| Fuel..... | \$32,853 | | |
| Power..... | \$4,841 | | |
| Royalties and rents..... | \$30,868 | | |
| Taxes..... | \$19,922 | | |
| Contract work..... | \$30,750 | | |
| Expenditures for development (included in the above items)..... | \$93,885 | | |
| Value of products..... | \$1,927,304 | | |
| Persons engaged in industry..... | 939 | | |
| Proprietors and firm members (total)..... | 75 | | |
| Number performing manual labor..... | 23 | | |
| Salaried officers..... | 16 | | |
| Superintendents and managers..... | 27 | | |
| Technical employees..... | 17 | | |
| Clerks, etc..... | 30 | | |
| Wage earners (average number)..... | 774 | | |
| Wage earners by occupation (Dec. 15): | | | |
| Above ground (total)..... | 1,318 | | |
| Below ground (total)..... | 836 | | |
| Foremen, shift bosses, etc.— | | | |
| Above ground..... | 15 | | |
| Below ground..... | 16 | | |
| Enginemen, hoistmen, electricians, mechanics, etc.— | | | |
| Above ground..... | 42 | | |
| Below ground..... | 16 | | |

1 Includes 2 females.

SOUTH DAKOTA.

South Dakota, which ranks fourteenth among the states in size (land area 76,868⁸ square miles) and thirty-seventh in population (636,547 in 1920), ranked thirty-fifth in value of mineral products for 1919. The state ranked thirty-eighth in the total number of persons engaged in the mining industries and thirty-seventh in the average number of persons employed.

The total amount received for products by operators of mines, quarries, and wells in South Dakota in 1919 was \$5,314,516, which was a decrease of 17.4 per cent as compared with the gross value of products reported at the census of 1909. This decrease and the decreases in capital, wages, cost of supplies and materials and fuel and power, shown in Table 1, diminished by the general price increases during the census period, and are therefore not a fair measure of change in the mining industries. The decreases in number of enterprises, number of individual mines and quarries operated, and average number of wage earners employed, as shown in Table 1, indicate decline in mining in South Dakota in 1919, but are in part due to temporarily adverse industrial conditions.

The mining industries reported in South Dakota for 1919, classified according to principal products and listed in order of value of products, were gold and silver from lode mines, sandstone, granite, gypsum, coal, limestone, mica, lead, and natural gas. The leading industry was the mining of gold ores in which South Dakota ranked fifth among the states. Statis-

tics for this industry are not presented separately in order to avoid disclosure of individual operations.

The character of organizations conducting mining enterprises is shown in Table 2, which indicates the preponderance of corporations not only as to number of enterprises operated, but also far more as to number of wage earners employed and value of products reported.

Table 3 shows that, measured by number of wage earners employed, all mining enterprises in the state of South Dakota were small; only 2 had more than 100 wage earners each and employed more than 90 per cent of the total number of wage earners. These larger enterprises were in the gold mining industry.

Table 4 shows that for a majority of the enterprises employing wage earners and for 98.3 per cent of all the wage earners the prevailing hours of labor were 54 to 62 per week. The 8-hour day and 7-day week prevailed in the gold mines, and the 10-hour day and 6-day week in the quarries and gypsum mines.

The statistics for wage earners presented in Table 5, showing changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 6 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

| | MINING INDUSTRIES. | | Per cent of increase. ¹ | | MINING INDUSTRIES. | | Per cent of increase. ¹ |
|--|--------------------|---------|--|-----------------------------|--------------------|----------------|--|
| | 1919 | 1909 | | | 1919 | 1909 | |
| Number of enterprises..... | 23 | 39 | ..... | Capital..... | \$28, 131, 022 | \$32, 007, 091 | -14.0 |
| Number of mines and quarries..... | 28 | 43 | ..... | Principal expenses: | | | |
| Number of natural-gas wells..... | 1 | 3 | ..... | Salaries..... | 210, 810 | 207, 137 | 4.7 |
| Persons engaged..... | 1, 880 | 3, 577 | -47.4 | Wages..... | 2, 407, 340 | 3, 224, 675 | -22.0 |
| Proprietors and firm members, total..... | 15 | 31 | ..... | Contract work..... | 11, 941 | 80 | ..... |
| Number performing manual labor in or about the mines, quarries, and wells..... | 11 | 8 | ..... | Supplies and materials..... | 1, 008, 190 | 1, 100, 671 | -8.1 |
| Salaried employees..... | 80 | 90 | ..... | Fuel and power..... | 284, 010 | 421, 048 | -32.5 |
| Wage earners (average number)..... | 1, 785 | 3, 450 | -48.4 | Royalties and rents..... | 6, 805 | 4, 770 | 42.5 |
| Power used (horsepower)..... | 11, 844 | 15, 648 | -24.3 | Taxes..... | 425, 488 | 102, 003 | 310.9 |
| | | | | Value of products..... | 5, 314, 516 | 6, 432, 417 | -17.4 |

¹ A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.

² Includes cost of ore purchased as material.

MINES AND QUARRIES—SOUTH DAKOTA.

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TABLE 2.—CHARACTER OF ORGANIZATION, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Number of wage earners. | VALUE OF PRODUCTS. | | PER CENT DISTRIBUTION. | | |
|---|------------------------|-------------------------|--------------------|-----------------|------------------------|---------------|--------------------|
| | | | Total. | Per enterprise. | Enterprises. | Wage earners. | Value of products. |
| All industries..... | 23 | 1,785 | \$5,314,516 | \$231,066 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 14 | 1,753 | 5,198,671 | 371,334 | 60.9 | 98.5 | 97.8 |
| Individual..... | 5 | 24 | 105,092 | 21,018 | 21.7 | 1.3 | 2.0 |
| Firm..... | 4 | 3 | 10,753 | 2,688 | 17.4 | 0.2 | 0.2 |

TABLE 3.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | | INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | |
|---|--------------|------------------------|---------------|------------------------|---|--------------|------------------------|---------------|------------------------|
| | Number. | Per cent distribution. | Number. | Per cent distribution. | | Number. | Per cent distribution. | Number. | Per cent distribution. |
| All industries..... | 23 | 100.0 | 1,785 | 100.0 | SANDSTONE..... | 5 | 100.0 | 89 | 100.0 |
| No wage earners..... | 0 | 26.1 | | | 1 to 5..... | 2 | 40.0 | 6 | 6.7 |
| 1 to 5..... | 9 | 39.1 | 25 | 1.4 | 6 to 20..... | 1 | 20.0 | 18 | 20.2 |
| 6 to 20..... | 3 | 13.0 | 43 | 2.4 | 21 to 50..... | 2 | 40.0 | 65 | 73.0 |
| 21 to 50..... | 3 | 13.0 | 90 | 5.5 | COAL, BITUMINOUS..... | 5 | 100.0 | 8 | 100.0 |
| 51 to 100..... | 1 | 4.4 | 106 | 5.9 | No wage earners..... | 2 | 40.0 | | |
| 101 to 500..... | 1 | 4.4 | 1,512 | 84.7 | 1 to 5..... | 3 | 60.0 | 8 | 100.0 |
| Over 1,000..... | 1 | 4.4 | | | | | | | |

TABLE 4.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | INDUSTRY. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | |
|--------------------|--------------|---------------|---|---------------|--------------|---------------|--------------|---------------|-----------------------|--------------|---------------|---|---------------|--------------|---------------|--------------|---------------|
| | Enterprises. | Wage earners. | 36 to 43. | | 44 to 53. | | 54 to 62. | | | Enterprises. | Wage earners. | 36 to 43. | | 44 to 53. | | 54 to 62. | |
| | | | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. | | | | Enterprises. | Wage earners. | Enterprises. | Wage earners. | Enterprises. | Wage earners. |
| All industries.... | 17 | 1,785 | 1 | 2 | 6 | 20 | 10 | 1,754 | Coal, bituminous..... | 3 | 8 | 1 | 2 | 1 | 3 | 1 | 3 |
| Sandstone..... | 5 | 80 | | | 1 | 3 | 4 | 80 | All other..... | 9 | 1,688 | | | 4 | 23 | 5 | 1,685 |

¹ Exclusive of 6 enterprises employing no wage earners in industries as follows: Coal, bituminous, 2; gold and silver, lode mines, 1; limestone, 2; natural gas, 1.

TABLE 5.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

(The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.)

| INDUSTRY. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|-------------------------------|--------------------------------------|---|-----------|--------|--------|-------|-------|-------|---------|------------|----------|-----------|-----------|---------------------------------|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| All industries..... | 1,854 | 1,830 | 1,900 | 1,898 | 1,858 | 1,854 | 1,900 | 1,903 | 1,945 | 1,920 | 1,762 | 1,675 | 1,730 | 85.2 |
| Producing enterprises..... | 1,785 | 1,801 | 1,868 | 1,860 | 1,819 | 1,793 | 1,826 | 1,890 | 1,866 | 1,828 | 1,663 | 1,574 | 1,632 | 83.3 |
| Sandstone..... | 89 | 40 | 48 | 42 | 65 | 76 | 89 | 122 | 141 | 121 | 111 | 127 | 91 | 28.4 |
| Coal, bituminous..... | 8 | 16 | 11 | 13 | 6 | 4 | | | 6 | 6 | 10 | 13 | 15 | 12.5 |
| All other industries..... | 1,688 | 1,745 | 1,814 | 1,805 | 1,748 | 1,713 | 1,737 | 1,768 | 1,723 | 1,701 | 1,542 | 1,434 | 1,526 | 79.1 |
| Nonproducing enterprises..... | 69 | 38 | 38 | 38 | 39 | 61 | 74 | 73 | 79 | 92 | 99 | 99 | 98 | 38.4 |

TABLE 6.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

| | Aggregate. | PRODUCING ENTERPRISES. | | | | Non-producing enterprises. ¹ |
|--|-----------------------------|------------------------|------------|-------------------|-------------------------|---|
| | | Total. | Sandstone. | Coal, bituminous. | All other. ² | |
| Number of enterprises..... | 28 | 23 | 5 | 5 | 13 | 5 |
| Number of mines and quarries..... | 33 | 28 | 6 | 5 | 17 | 5 |
| Number of natural-gas wells..... | 1 | 1 | | | 1 | |
| Capital..... | \$30,509,078 | \$28,131,922 | \$104,507 | \$12,770 | \$27,004,045 | \$2,434,750 |
| Principal expenses: | | | | | | |
| Salaries and wages— | | | | | | |
| Officers..... | \$10,085 | \$8,050 | \$4,150 | | \$4,500 | \$2,035 |
| Superintendents and managers..... | \$64,703 | \$62,000 | \$4,500 | | \$57,500 | \$2,700 |
| Technical employees..... | \$84,538 | \$84,538 | | | \$84,538 | |
| Clerks, etc..... | \$62,021 | \$61,550 | \$3,204 | | \$58,202 | \$1,005 |
| Wage earners..... | \$2,590,754 | \$2,497,340 | \$98,303 | \$11,423 | \$2,387,614 | \$60,414 |
| Supplies and materials..... | \$1,063,388 | \$1,008,190 | \$35,850 | \$937 | \$971,400 | \$55,122 |
| Fuel..... | \$248,105 | \$238,703 | \$3,089 | \$105 | \$234,000 | \$4,497 |
| Power..... | \$49,813 | \$45,310 | \$6,005 | | \$38,711 | \$7,497 |
| Royalties and rents..... | \$1,805 | \$9,805 | \$1,175 | \$1,500 | \$4,130 | |
| Taxes..... | \$427,018 | \$425,485 | \$1,335 | \$310 | \$423,840 | \$1,533 |
| Contract work..... | \$22,000 | \$11,041 | | | \$11,041 | \$10,128 |
| Expenditures for development (included in the above items)..... | \$190,572 | \$41,003 | | | \$41,003 | \$148,009 |
| Value of products..... | \$5,314,516 | \$5,314,510 | \$140,008 | \$20,802 | \$5,144,550 | |
| Persons engaged in industry..... | | | | | | |
| Proprietors and firm members (total)..... | 1,058 | 1,880 | 00 | 10 | 1,708 | 78 |
| Number performing manual labor..... | 10 | 15 | | 8 | 7 | 1 |
| Salaried officers..... | 11 | 5 | | 7 | 4 | 3 |
| Superintendents and managers..... | 8 | 15 | 2 | | 3 | 3 |
| Technical employees..... | 18 | 15 | 3 | | 12 | 3 |
| Clerks, etc..... | 23 | 23 | | | 23 | |
| Wage earners (average number)..... | 39 | 37 | 2 | | 35 | 2 |
| Total..... | 1,854 | 1,785 | 80 | 8 | 1,688 | 69 |
| Wage earners by occupation (Dec. 15): | | | | | | |
| Above ground (total)..... | 1,149 | 1,065 | 101 | 7 | 957 | 84 |
| Below ground (total)..... | 656 | 624 | | 9 | 615 | 32 |
| Foremen, shift bosses, etc.— | | | | | | |
| Above ground..... | 55 | 48 | 3 | | 45 | 7 |
| Below ground..... | 43 | 35 | | | 35 | 7 |
| Enginemen, hoistmen, electricians, mechanics, etc.— | | | | | | |
| Above ground..... | 344 | 320 | 10 | 1 | 309 | 24 |
| Below ground..... | 24 | 24 | | | 24 | |
| Miners, quarrymen, and drillmen, including their helpers— | | | | | | |
| Above ground..... | 119 | 90 | 10 | 4 | 70 | 23 |
| Below ground..... | 307 | 282 | | 0 | 273 | 25 |
| Timbermen, trackmen, and men engaged in hauling, tramming, etc.— | | | | | | |
| Above ground..... | 63 | 63 | 1 | 2 | 60 | |
| Below ground..... | 38 | 38 | | | 38 | |
| Muckers, loaders, laborers, and others not classified— | | | | | | |
| Above ground..... | 320 | 290 | 07 | | 220 | 30 |
| Below ground..... | 245 | 245 | | | 245 | |
| Wage earners employed in mills and beneficiating plants— | | | | | | |
| Above ground..... | 242 | 242 | 4 | | 233 | |
| Number of females included in wage earners reported above: | | | | | | |
| Above ground..... | 2 | 2 | | | 2 | |
| Mineral and oil land operated..... | acres.. 13,809 | 11,538 | 128 | 880 | 10,530 | 2,331 |
| Land controlled, total..... | acres.. 49,259 | 49,288 | 128 | 1,520 | 41,040 | 2,971 |
| Mineral and oil land owned..... | 12,237 | 11,050 | 113 | 720 | 10,223 | 1,181 |
| Mineral and oil land leased..... | 1,632 | 482 | 15 | 100 | 307 | 1,180 |
| Timber and other lands owned and leased..... | 32,390 | 31,750 | | 640 | 31,110 | 640 |
| Power used: Aggregate horsepower..... | 12,730 | 11,844 | 407 | 40 | 11,208 | 805 |
| Prime movers (horsepower, total)..... | 10,484 | 9,434 | 90 | 49 | 9,095 | 600 |
| Steam engines— | | | | | | |
| Number..... | 17 | 10 | 3 | 1 | 6 | 7 |
| Horsepower..... | 5,455 | 4,855 | 00 | 35 | 4,730 | 600 |
| Steam turbines— | | | | | | |
| Number..... | 2 | 2 | | | 2 | |
| Horsepower..... | 4,500 | 4,500 | | | 4,500 | |
| Internal-combustion engines— | | | | | | |
| Number..... | 9 | 0 | | 3 | 6 | |
| Horsepower..... | 354 | 354 | | 14 | 340 | |
| Water wheels, turbines, and motors— | | | | | | |
| Number..... | 9 | 0 | | | 9 | |
| Horsepower..... | 125 | 125 | | | 125 | |
| Purchased power (horsepower, total)..... | 2,305 | 2,010 | 407 | | 1,603 | 295 |
| Electric motors operated by purchased current— | | | | | | |
| Number..... | 101 | 91 | 13 | | 78 | 10 |
| Horsepower..... | 2,305 | 2,010 | 407 | | 1,603 | 295 |
| Electric motors run by current generated by enterprise using: | | | | | | |
| Number..... | 311 | 311 | | | 311 | |
| Horsepower..... | 11,945 | 11,945 | | | 11,945 | |
| Fuel used: | | | | | | |
| Coal, bituminous..... | tons, 2,000 pounds.. 43,111 | 42,111 | 003 | 23 | 41,480 | 1,000 |
| Coke..... | tons, 2,000 pounds.. 236 | 236 | | | 236 | |
| Wood..... | cords.. 4,100 | 2,719 | | | 2,719 | 1,380 |
| Fuel oils..... | barrels.. 2,748 | 2,748 | | | 2,748 | |
| Gasoline and other volatile oils..... | barrels.. 327 | 327 | 1 | 15 | 311 | |

¹ Includes enterprises as follows: Gold and silver, lode mines, 4; granite, 1; gypsum, 2; lead, 1; limestone, 3; mica, 1; natural gas, 1.

² Includes enterprises as follows: Gold, silver, copper, lead, or zinc, lode mines, 4; rare metals (tin and tungsten), 1.

WYOMING.

Wyoming, which ranks eighth among the states in size (land area 97,548 square miles) and forty-eighth in population (194,402 in 1920), ranked seventeenth in value of mineral products in 1919. The state ranked twenty-second in the total number of persons engaged in the mining industries and in the average number of wage earners employed.

The gross value of mineral products of Wyoming in 1919 was \$41,928,788, which was an increase of 296.6 per cent over the value reported at the census of 1909. This amount includes a duplication of \$74,281, the value of natural gas sold by some producers to others who used it as material or resold it and included it in the products reported by them. The value of products also includes in addition to the value of principal mineral products a small amount received for mineral by-products and for power or miscellaneous services furnished to other enterprises.

The increases in value of products, capital, salaries, wages, cost of supplies and materials and fuel and power, shown in Table 1, are not wholly a measure of growth of mining in Wyoming as they were augmented in large part by general price increases during the census interval. The increases in number of enterprises, number of wells operated, and average number of wage earners employed are a better measure of the progress of the mining industries.

The mining industries reported in Wyoming for 1919, classified according to principal products and listed in order of value of products, were petroleum and natural gas, coal, iron ore, gypsum, limestone, ores of rare metals (uranium), chromite, sandstone, asbestos, and clay. The mineral industries for which statistics can be shown without disclosure of individual operations are ranked by value of products in Table 2.

The leading industry in Wyoming was the production of petroleum and natural gas in which 39 out of a total of 106 enterprises in the state were engaged. The industry employed 22.3 per cent of the total number of wage earners and reported products valued at \$21,959,937, which was 52.4 per cent of the total value of products of the state. In this industry Wyoming ranked eleventh in the United States. Productive operations were distributed over the state in 13 counties, but the most important were in Salt Creek Field in Natrona County, Big Muddy Field in

Converse County, Grass Creek Field in Hot Springs County, and Elk Basin Field in Park County.

The industry second in importance in Wyoming in 1919 was the mining of bituminous coal, in which 46 enterprises were engaged. They employed 73.1 per cent of the total number of wage earners and reported products valued at \$18,723,451, which was 44.7 per cent of the total value of products of the state. In this industry Wyoming ranked tenth in the United States. The producing mines were in 12 counties, of which Sweetwater, Sheridan, and Lincoln were most productive.

The form of organizations conducting mining enterprises in the state of Wyoming in 1919 is shown in Table 3, which brings out the preponderance of corporations over other forms of organization. Corporations conducted 86.8 per cent of the total number of enterprises, employed 99.3 per cent of the total number of wage earners, and reported 99.6 per cent of the total value of products.

The relatively large number of small enterprises, as measured by the average number of wage earners employed, is shown in Table 4. Of the total number of mining enterprises in Wyoming, 4 employed no wage earners and 74, or 69.8 per cent, had fewer than 101 wage earners each and employed only 14.8 per cent of the total number of wage earners. On the other hand, 26.4 per cent of the total number of enterprises had more than 100 wage earners each, and these enterprises employed 85.2 per cent of the total number of wage earners. The larger enterprises were in the coal-mining, petroleum and natural-gas, and iron-ore-mining industries.

Table 5 shows that in a majority of the enterprises and for 77.1 per cent of the total number of wage earners the hours of labor were 44 to 53 per week. A considerable number of other enterprises reported 45 to 62 hours per week. In the coal-mining industry the 8-hour day and 6-day week prevailed, while in the petroleum and natural-gas industry longer hours were the rule.

The statistics for wage earners presented in Table 6, showing the changes in the number employed month by month, reflect conditions prevailing in the industries during the census year.

Table 7 presents for 1919 statistics in detail for the state as a whole and for each industry that can be shown without the disclosure of individual operations.

MINES AND QUARRIES—WYOMING.

TABLE 1.—COMPARATIVE SUMMARY, PRODUCING ENTERPRISES: 1919 AND 1909.

| | MINING INDUSTRIES. | | Per cent of increase. ¹ | | MINING INDUSTRIES. | | Per cent of increase. ¹ |
|--|--------------------|--------|------------------------------------|-----------------------------|--------------------|-------------|------------------------------------|
| | 1919 | 1909 | | | 1919 | 1909 | |
| Number of enterprises..... | 106 | 66 | | Capital..... | \$101,774,873 | \$9,505,365 | 970.7 |
| Number of mines and quarries..... | 87 | 95 | | Principal expenses: | | | |
| Number of petroleum and natural-gas wells..... | 1,084 | 21 | | Salaries..... | 1,386,029 | 447,407 | 210.0 |
| Number of natural-gas gasoline plants..... | 5 | | | Wages..... | 14,576,415 | 6,296,787 | 132.8 |
| Persons engaged..... | 10,273 | 8,226 | 24.0 | Contract work..... | 715,900 | 61,542 | 1,083.4 |
| Proprietors and firm members, total..... | 19 | 202 | -90.6 | Supplies and materials..... | 2 6,422,709 | 1,385,594 | 363.5 |
| Number performing manual labor in or about the mines, quarries, and wells..... | 7 | 13 | | Fuel and power..... | 1,072,787 | 370,187 | 185.2 |
| Salaried employees..... | 555 | 282 | 96.8 | Royalties and rents..... | 1,765,597 | 107,834 | 1,637.3 |
| Wage earners (average number)..... | 9,699 | 7,742 | 25.3 | Taxes..... | 1,006,372 | 61,409 | 3,150.9 |
| Power used (horsepower)..... | 62,757 | 30,338 | 106.9 | Value of products..... | 41,628,788 | 10,572,188 | 296.6 |

¹ A minus sign (-) denotes decrease. Percentages are omitted where base is less than 100.

² Includes cost of natural gas purchased for use as material.

TABLE 2.—PRINCIPAL INDUSTRIES, PRODUCING ENTERPRISES, RANKED BY VALUE OF PRODUCTS: 1919.

| INDUSTRY. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | | INDUSTRY. | Number of enterprises. | WAGE EARNERS. | | VALUE OF PRODUCTS. | |
|--------------------------------|------------------------|-----------------|------------------------|--------------------|------------------------|---|------------------------|-----------------|------------------------|--------------------|------------------------|
| | | Average number. | Per cent distribution. | Amount. | Per cent distribution. | | | Average number. | Per cent distribution. | Amount. | Per cent distribution. |
| All industries..... | 106 | 9,699 | 100.0 | \$41,628,788 | 100.0 | Coal, bituminous..... | 46 | 7,091 | 73.1 | \$18,723,451 | 44.7 |
| Petroleum and natural gas..... | 39 | 2,167 | 22.3 | 21,059,937 | 52.4 | All other industries ¹ | 21 | 441 | 4.5 | 1,245,400 | 3.0 |

¹ Includes enterprises in industries as follows: Asbestos, 2; chromite, 1; clay, 1; gypsum, 4; iron ore, 1; limestone, 8; sandstone, 3; rare metals (uranium), 1.

TABLE 3.—CHARACTER OF ORGANIZATION, FOR SELECTED INDUSTRIES, PRODUCING ENTERPRISES: 1919.

| INDUSTRY AND CHARACTER OF ORGANIZATION. | Number of enterprises. | Number of wage earners. | VALUE OF PRODUCTS. | | PER CENT DISTRIBUTION. | | |
|---|------------------------|-------------------------|--------------------|-----------------|------------------------|---------------|--------------------|
| | | | Total. | Per enterprise. | Enterprises. | Wage earners. | Value of products. |
| ALL INDUSTRIES..... | 106 | 9,699 | \$41,628,788 | \$395,556 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 92 | 9,033 | 41,753,351 | 453,841 | 80.8 | 99.3 | 99.6 |
| Individual..... | 10 | 37 | 123,648 | 12,305 | 0.4 | 0.4 | 0.3 |
| Firm..... | 4 | 29 | 51,789 | 12,947 | 3.8 | 0.3 | 0.1 |
| PETROLEUM AND NATURAL GAS..... | 39 | 2,167 | 21,059,937 | 563,075 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 39 | 2,167 | 21,059,937 | 563,075 | 100.0 | 100.0 | 100.0 |
| COAL, BITUMINOUS..... | 46 | 7,091 | 18,723,451 | 407,032 | 100.0 | 100.0 | 100.0 |
| Corporation..... | 37 | 7,052 | 18,041,184 | 503,816 | 80.4 | 99.4 | 99.6 |
| Individual..... | 5 | 10 | 80,478 | 6,090 | 10.9 | 0.1 | 0.2 |
| Firm..... | 4 | 29 | 51,789 | 12,947 | 8.7 | 0.4 | 0.3 |

TABLE 4.—SIZE OF PRODUCING ENTERPRISES, BY AVERAGE NUMBER OF WAGE EARNERS, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | | INDUSTRY AND WAGE EARNERS PER ENTERPRISE. | ENTERPRISES. | | WAGE EARNERS. | |
|---|--------------|------------------------|---------------|------------------------|---|--------------|------------------------|---------------|------------------------|
| | Number. | Per cent distribution. | Number. | Per cent distribution. | | Number. | Per cent distribution. | Number. | Per cent distribution. |
| ALL INDUSTRIES..... | 100 | 100.0 | 9,699 | 100.0 | PETROLEUM AND NATURAL GAS... | 39 | 100.0 | 2,167 | 100.0 |
| No wage earners..... | 4 | 3.8 | ..... | ..... | No wage earners..... | 2 | 5.1 | ..... | ..... |
| 1 to 5..... | 28 | 26.4 | 63 | 0.6 | 1 to 5..... | 13 | 33.3 | 32 | 1.5 |
| 6 to 20..... | 25 | 23.0 | 259 | 2.6 | 6 to 20..... | 11 | 28.2 | 92 | 4.2 |
| 21 to 50..... | 10 | 9.4 | 348 | 3.6 | 21 to 50..... | 4 | 10.3 | 146 | 6.7 |
| 51 to 100..... | 11 | 10.4 | 774 | 8.0 | 51 to 100..... | 5 | 12.8 | 350 | 16.2 |
| 101 to 500..... | 25 | 23.6 | 6,184 | 63.8 | 101 to 500..... | 3 | 7.7 | 760 | 35.1 |
| 501 to 1,000..... | 3 | 2.8 | 2,074 | 21.4 | 501 to 1,000..... | 1 | 2.6 | 787 | 36.3 |
| COAL, BITUMINOUS..... | 46 | 100.0 | 7,001 | 100.0 | | | | | |
| 1 to 5..... | 9 | 19.6 | 22 | 0.3 | | | | | |
| 6 to 20..... | 6 | 13.0 | 72 | 1.0 | | | | | |
| 21 to 50..... | 3 | 6.5 | 111 | 1.6 | | | | | |
| 51 to 100..... | 5 | 10.9 | 372 | 5.2 | | | | | |
| 101 to 500..... | 21 | 45.7 | 5,227 | 73.7 | | | | | |
| 501 to 1,000..... | 2 | 4.3 | 1,287 | 18.1 | | | | | |

TABLE 5.—NUMBER OF PRODUCING ENTERPRISES AND AVERAGE NUMBER OF WAGE EARNERS, BY PREVAILING HOURS OF LABOR PER WEEK, FOR SELECTED INDUSTRIES: 1919.

| INDUSTRY. | TOTAL. | | NUMBER WHERE THE PREVAILING HOURS OF LABOR PER WEEK WERE— | | | | | | | | | |
|--------------------------------|---------------|---------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Enter-prises. | Wage earners. | 36 to 43. | | 44 to 53. | | 54 to 62. | | 63 to 71. | | 72 to 84. | |
| | | | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. | Enter-prises. | Wage earners. |
| All industries..... | 102 | 9,699 | 3 | 19 | 50 | 7,481 | 23 | 1,892 | 10 | 239 | 10 | 68 |
| Coal, bituminous..... | 40 | 7,091 | 1 | 10 | 44 | 7,033 | 1 | 42 | ..... | ..... | ..... | ..... |
| Petroleum and natural gas..... | 37 | 2,167 | ..... | ..... | 7 | 221 | 14 | 1,683 | 7 | 204 | 9 | 59 |
| All other industries..... | 19 | 441 | 2 | 3 | 5 | 227 | 8 | 167 | 3 | 35 | 1 | 9 |

¹ Exclusive of 4 enterprises employing no wage earners in industries as follows: Petroleum and natural gas, 2; limestone, 2.

TABLE 6.—WAGE EARNERS, BY MONTHS, FOR SELECTED INDUSTRIES: 1919.

[The month of maximum employment for each industry is indicated by bold-faced figures and that of minimum employment by *italic* figures.]

| INDUSTRY. | Average number employed during year. | NUMBER EMPLOYED ON 15TH DAY OF THE MONTH OR NEAREST REPRESENTATIVE DAY. | | | | | | | | | | | | Per cent minimum is of maximum. |
|--------------------------------|--------------------------------------|---|--------------|--------|--------|-------|--------------|--------------|---------|------------|----------|-----------|-----------|---------------------------------|
| | | January. | February. | March. | April. | May. | June. | July. | August. | September. | October. | November. | December. | |
| All industries..... | 9,781 | 10,978 | 10,448 | 10,245 | 9,620 | 9,234 | 9,000 | <i>8,051</i> | 9,594 | 9,810 | 9,872 | 9,101 | 10,350 | 82.4 |
| Producing enterprises..... | 9,699 | 10,980 | 10,407 | 10,188 | 9,565 | 9,123 | 8,940 | <i>8,042</i> | 9,476 | 9,723 | 9,788 | 9,016 | 10,272 | 81.7 |
| Coal, bituminous..... | 7,091 | 8,445 | 7,988 | 7,621 | 6,972 | 6,358 | <i>6,117</i> | 6,180 | 6,688 | 6,980 | 7,339 | 6,570 | 7,819 | 72.4 |
| Petroleum and natural gas..... | 2,167 | 2,062 | <i>1,959</i> | 2,087 | 2,048 | 2,201 | 2,306 | 2,195 | 2,248 | 2,233 | 2,210 | 2,212 | 2,248 | 85.0 |
| All other industries..... | 441 | 432 | 460 | 480 | 545 | 564 | 520 | 581 | 540 | 501 | 239 | 234 | 210 | 37.2 |
| Nonproducing enterprises..... | 82 | 30 | 41 | 57 | 64 | 111 | 111 | 109 | 118 | 87 | 84 | 85 | 78 | 33.1 |
| Petroleum and natural gas..... | 97 | 25 | 28 | 41 | 49 | 95 | 95 | 93 | 104 | 75 | 69 | 68 | 62 | 24.0 |
| All other industries..... | 15 | 14 | 13 | 10 | 15 | 16 | 16 | 16 | 14 | 12 | 15 | 17 | 16 | 70.6 |

TABLE 7.—DETAILED STATISTICS FOR MINING INDUSTRIES: 1919.

| | Aggregate. | PRODUCING ENTERPRISES. | | | NONPRODUCING ENTERPRISES. | | | |
|--|---------------|------------------------|----------------------------|-------------------|---------------------------|-------------|----------------------------|-------------------------|
| | | Total. | Petroleum and natural gas. | Coal, bituminous. | All other. ¹ | Total. | Petroleum and natural gas. | All other. ¹ |
| Number of enterprises..... | 121 | 106 | 39 | 40 | 21 | 15 | 11 | 4 |
| Number of mines and quarries..... | 91 | 87 | | 85 | 22 | 4 | | 4 |
| Number of petroleum and natural-gas wells..... | 1,084 | 1,084 | 1,084 | | | | | |
| Number of natural-gas gasoline plants..... | 5 | 5 | 5 | | | | | |
| Capital..... | \$104,429,923 | \$101,774,873 | \$85,020,743 | \$33,876,697 | \$2,277,324 | \$2,655,050 | \$2,427,130 | \$227,920 |
| Principal expenses: | | | | | | | | |
| Salaries and wages— | | | | | | | | |
| Officers..... | \$46,223 | \$35,100 | \$131,974 | \$227,459 | \$15,084 | \$11,101 | \$9,304 | \$1,800 |
| Superintendents and managers..... | \$121,849 | \$102,032 | \$115,805 | \$229,776 | \$29,451 | \$32,817 | \$13,001 | \$9,156 |
| Technical employees..... | \$113,006 | \$110,013 | \$23,842 | \$77,310 | \$6,855 | \$12,093 | \$25,878 | \$7,116 |
| Clerks, etc..... | \$117,277 | \$139,705 | \$127,071 | \$288,187 | \$21,207 | \$7,492 | \$7,492 | \$19,341 |
| Wage earners..... | \$11,710,269 | \$14,576,415 | \$3,189,735 | \$10,545,031 | \$511,646 | \$133,851 | \$114,513 | \$7,076 |
| Supplies and materials..... | \$6,789,022 | \$6,348,488 | \$1,737,754 | \$2,287,071 | \$402,763 | \$111,131 | \$131,058 | \$7,076 |
| Cost of natural gas purchased for use as material or for resale..... | \$74,281 | \$71,281 | \$71,281 | | | | | |
| Fuel..... | \$865,132 | \$762,272 | \$273,004 | \$384,788 | \$65,300 | \$12,800 | \$10,000 | \$2,800 |
| Power..... | \$310,515 | \$310,515 | | \$310,515 | | | | |
| Royalties and rents..... | \$1,783,796 | \$1,765,597 | \$1,497,103 | \$239,261 | \$20,230 | \$18,199 | \$15,000 | \$2,600 |
| Taxes..... | \$1,099,502 | \$1,099,370 | \$1,158,221 | \$806,211 | \$31,010 | \$3,130 | \$2,840 | \$281 |
| Contract work..... | \$820,003 | \$715,000 | \$670,625 | \$1,232 | \$38,103 | \$104,643 | \$33,043 | \$11,000 |
| Expenditures for development (included in the above items)..... | \$6,843,057 | \$6,000,835 | \$5,722,038 | \$318,297 | \$20,500 | \$782,222 | \$721,203 | \$58,019 |
| Value of products..... | \$41,928,788 | \$41,928,788 | \$21,050,037 | \$18,723,451 | \$1,215,400 | | | |
| Persons engaged in industry..... | 10,300 | 10,273 | 2,358 | 7,427 | 488 | 120 | 103 | 23 |
| Proprietors and firm members (total)..... | 10 | 10 | | 14 | 5 | | | |
| Number performing manual labor..... | 7 | 7 | | 6 | 1 | | | |
| Salaried officers..... | 94 | 87 | 32 | 50 | 5 | 7 | 0 | 1 |
| Superintendents and managers..... | 156 | 145 | 53 | 77 | 15 | 11 | 7 | 4 |
| Technical employees..... | 58 | 30 | 7 | 23 | 4 | 10 | 16 | 8 |
| Clerks, etc..... | 201 | 284 | 0 | 107 | 18 | 7 | 7 | |
| Wage earners (average number)..... | 9,781 | 9,699 | 2,107 | 7,091 | 441 | 82 | 67 | 15 |
| Wage earners by occupation (Dec. 15): | | | | | | | | |
| Above ground (total)..... | 4,000 | 3,948 | 2,202 | 1,307 | 370 | 112 | 100 | 0 |
| Below ground (total)..... | 6,618 | 6,608 | | 6,488 | 120 | 10 | | 10 |
| Foremen, shift bosses, etc.— | | | | | | | | |
| Above ground..... | 72 | 71 | | 52 | 19 | 1 | | 1 |
| Below ground..... | 101 | 101 | | 91 | 10 | | | |
| Enginemen, hoistmen, electricians, mechanics, etc.— | | | | | | | | |
| Above ground..... | 2,430 | 2,375 | 1,040 | 372 | 54 | 64 | 62 | 2 |
| Below ground..... | 297 | 297 | | 286 | 11 | | | |
| Miners, quarrymen, and drillmen, including their helpers— | | | | | | | | |
| Above ground..... | 100 | 159 | | 89 | 70 | 1 | | 1 |
| Below ground..... | 3,277 | 3,269 | | 3,253 | 16 | 8 | | 8 |
| Timbermen, trackmen, and men engaged in hauling, tramping, etc.— | | | | | | | | |
| Above ground..... | 212 | 212 | | 182 | 30 | | | |
| Below ground..... | 1,056 | 1,065 | | 1,035 | 30 | 1 | | 1 |
| Muckers, loaders, laborers, and others not classified— | | | | | | | | |
| Above ground..... | 1,123 | 1,077 | 313 | 612 | 152 | 40 | 44 | 2 |
| Below ground..... | 1,877 | 1,870 | | 1,823 | 53 | 1 | | 1 |
| Wage earners employed in mills and beneficiating plants— | | | | | | | | |
| Above ground..... | 54 | 54 | | | 54 | | | |
| Number of females included in wage earners reported above— | | | | | | | | |
| Above ground..... | 65 | 62 | 02 | | | 3 | 3 | |
| Number of wage earners under 16 years of age included in those reported above— | | | | | | | | |
| Above ground..... | 2 | 2 | | 2 | | | | |
| Mineral and oil land operated..... acres | 272,101 | 264,695 | 109,542 | 57,592 | 7,591 | 7,400 | 0,076 | 1,330 |
| Land controlled, total..... acres | 275,383 | 267,977 | 109,542 | 60,842 | 7,593 | 7,400 | 0,076 | 1,330 |
| Mineral and oil land owned..... | 59,184 | 58,584 | 8,210 | 44,523 | 5,848 | 600 | | 600 |
| Mineral and oil land leased..... | 212,910 | 206,113 | 101,332 | 13,030 | 1,745 | 6,800 | 0,076 | 730 |
| Timber and other land owned and leased..... | 3,289 | 3,280 | | 3,280 | | | | |
| Power used: Aggregate horsepower..... | 63,478 | 62,757 | 12,803 | 47,075 | 2,780 | 721 | 620 | 92 |
| Prime movers (horsepower, total)..... | 40,538 | 48,817 | 12,803 | 33,135 | 2,780 | 721 | 620 | 92 |
| Steam engines— | | | | | | | | |
| Number..... | 335 | 317 | 212 | 88 | 17 | 18 | 16 | 2 |
| Horsepower..... | 23,537 | 22,916 | 5,531 | 14,850 | 2,535 | 621 | 501 | 60 |
| Steam turbines— | | | | | | | | |
| Number..... | 13 | 10 | | 10 | | | | |
| Horsepower..... | 18,243 | 18,240 | | 18,240 | | | | |
| Internal-combustion engines— | | | | | | | | |
| Number..... | 244 | 238 | 228 | 2 | 8 | 0 | 5 | 1 |
| Horsepower..... | 7,761 | 7,061 | 7,362 | 45 | 254 | 100 | 08 | 32 |
| Purchased power (horsepower, total)..... | 13,940 | 13,940 | | 13,940 | | | | |
| Electric motors operated by purchased current— | | | | | | | | |
| Number..... | 355 | 355 | | 355 | | | | |
| Horsepower..... | 13,940 | 13,940 | | 13,940 | | | | |
| Electric motors run by current generated by enterprise using: | | | | | | | | |
| Number..... | 108 | 108 | 1 | 62 | 15 | | | |
| Horsepower..... | 4,474 | 4,474 | 75 | 3,068 | 483 | | | |
| Fuel used: | | | | | | | | |
| Coal, bituminous..... tons, 2,000 pounds..... | 242,005 | 241,080 | 1,892 | 223,042 | 10,155 | 1,516 | 1,326 | 100 |
| Coke..... tons, 2,000 pounds..... | 14 | 14 | | | | | | |
| Wood..... tons, 2,000 pounds..... | 300 | 0 | | | | | | 354 |
| Fuel oils..... barrels..... | 131,730 | 119,210 | 110,210 | | | 354 | 12,325 | |
| Gasoline and other volatile oils..... barrels..... | 920 | 892 | 161 | 91 | | 12,124 | | 124 |
| Natural gas..... 1,000 cubic feet..... | 1,824,124 | 1,743,724 | 1,743,724 | | 500 | 80,400 | 80,400 | |

¹ Includes enterprises as follows: Asbestos, 2; chromite, 1; clay, 1; gypsum, 4; iron ore, 1; limestone, 8; sandstone, 3; rare metals (uranium), 1.

² Includes enterprises as follows: Gold, silver, or copper, lode mines, 3; sulphur, 1.